COMMANDER'S DIGEST

May 3, 1973

Transportation Policy:

DoD Directorate Supervises Military Transportation

Moving nine million passengers and 55 million tons of cargo about the world in Fiscal Year (FY) 1972—while aggregating expenditures amounting to about $4 billion—typifies the magnitude of operations by the Defense Department's Directorate for Transportation and Warehousing Policy (DTWP).

While the principal concern of DTWP is to assure the availability of transportation capability to meet worldwide U.S. military requirements in peace and war, its basic policy objective is to ensure that those requirements are met at reasonable costs without compromising quantity, quality or timeliness.

In support of that objective, it is the policy of the Department of Defense to place heavy reliance on the use of U.S. commercial carriers to move DoD cargo and passengers.

In terms of dollars in Fiscal Year 1972, DoD transportation expenditures amounted to about $4 billion. Those costs are expected to decline to about $3.4 billion this year and then remain stable.

Single-Manager Transportation Agencies

Any overall discussion of DoD transportation must include the three single-manager transportation agencies—the Military Traffic Management and Terminal Service (MTMTS), the Military Sealift Command (MSC), and the Military Airlift Command (MAC)—which are under the policy direction of the Assistant Secretary of Defense (Installations and Logistics).

MTMTS serves as the DoD single-manager operating agency for military traffic, land transportation and common-user ocean terminal service. With the exception of worldwide personal property operations, the responsibilities of MTMTS are primarily restricted to the continental United States (CONUS). Those responsibilities include managing the day-to-day movement of DoD freight and passengers via rail, motor, water and air.

MSC is responsible for providing ocean transportation between points in CONUS, between and within overseas areas, and in intercoastal and coastwise service within the United States. MSC relies primarily on commercial ships provided by the U.S. Merchant Marine to meet sealift requirements. MSC does operate, however, a small nucleus fleet of Government-owned ships with a limited capability.

MAC is responsible for providing airlife service to satisfy DoD peacetime and wartime requirements. During the past decade, the introduction of C-141 and C-5 aircraft has substantially increased military airlift capability. Concurrently, the commercial airlift capability available to augment MAC has increased appreciably. Those capabilities are committed to the Civil Reserve Air Fleet (CRAF) program for the purpose of supporting Defense requirements during emergencies.

In addition to its basic concern with DoD land, sea and air transportation, the Directorate for Transportation and Warehousing Policy is also responsible for providing guidance and assuring implementation of DoD programs for the movement of household goods, the use of administrative motor vehicles, postal operations, warehousing, packaging and materials handling. Each of those logistical operations has an impact upon transportation and the DoD distribution system. As distribution concepts change, the reallocation of DoD transportation and warehousing resources change accordingly. It is anticipated that all DoD transportation and warehousing personnel will be deeply involved in this reallocation in the years to come.

Constantly striving to improve efficiency and effectiveness of its military and commercial resources, DTWP has taken several recent actions toward that end:

- **Containerization.** Issued guidance directing that all ocean-going DoD cargo be containerized, unless operational circumstances dictate otherwise. On a worldwide basis, 28 percent of DoD export ocean cargo was containerized in 1970. Containerization increased to 44 percent in 1971 and to almost 50 percent in 1972.
- **Airlift of Hazardous Cargo.** By identifying the need for such service and urging the FAA to issue appropriate exemption authorities, the air-taxi industry was persuaded to offer cost-effective airlift service for the movement of small quantities of explosive or dangerous cargo between points within CONUS.
- **Reduced Air Fares for Leave Travel.** The commercial international air carriers offered special reduced air fares for the leave travel of overseas-based Servicemen and the visitation travel of Servicemen's wives and families. Those low-cost fares improved military morale.
- **Modification of LOGAIR/QUICK-TRANS Systems.** The contract cargo airlift systems of the Air Force and the Navy in CONUS have been modified to eliminate all non-turbine powered aircraft and to delete some direct air service in favor of less costly, controlled truck movement. In addition, the Air Force and Navy requirements have been merged into a single-route structure in the Florida area with a concurrent reduction in cost.
- **Airline Ticketing Service in the Pacific.** In collaboration with the Air Transport Association and Pacific Command, DoD has been successful in establishing a joint airline ticketing office in the Western Pacific area, manned by U.S. scheduled air carriers, to sell tickets for

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DOWN THE TRACK—A team of locomotive units pulls a freight train, partially loaded with military shipments, past a microwave relay tower facility.
(Union Pacific Railroad Photo)

the intra CONUS leave travel of returning Servicemen. As a result, the Service member coming home is now assured of firm flight reservations in CONUS, plus various other ancillary services not previously available.

- **Administrative Support Air Transportation.** A new DoD Instruction has just been developed, providing policy guidance on the use of DoD-owned and controlled aircraft for administrative support. It provides the criteria for assigning command administrative support aircraft, establishes clearance requirements before commercial aircraft may be acquired for administrative support, and requires inter-Service support in the use of DoD assets.

- **Commercial Berth Facilities.** In conjunction with the Maritime Administration, other Government agencies and the commercial port industry, arrangements have been made for the predesignation of commercial water terminals for exclusive DoD use in emergencies. Such action has enabled MTMTS to establish emergency plans for the use of such facilities and to complete standby arrangements with appropriate port authorities.

- **Sealift Procurement.** Provisions have been adopted to govern the procurement for DoD of berth-line sealift services by MSC. Under those provisions, an upper limit is placed on the amount of cargo which can be moved by any one carrier on any major route. In addition, competitive procedures for the procurement of berth-line services have been preserved, but successful bidders on the various routes are now regularly required to provide certain minimum services not previously called for.

- **Sealift Readiness and the National Defense Reserve Fleet.** It is anticipated that ships of the U.S. flag commercial fleet will be requisitioned for military purposes in major contingencies to augment the MSC-controlled fleet. But requisitioning authority is not likely to be exercised in lesser contingencies, so there is a need for alternative means of assuring that DoD sealift needs can be met in such cases. The problem is complicated by the fact that long-term diversion of any significant part of the U. S. Merchant Marine from its normal trade routes may lead to loss of trade and consequent weakening of the industry. In recognition of that problem, DoD seeks assurance of immediate sealift assistance from industry in small contingencies through the Sealift Readiness Program (SRP). At the same time, DoD provides for the renewal of the mothballed National Defense Reserve Fleet (NDRF). The NDRF represents a reserve capability that can be used to meet DoD contingency needs which could not be met by commercial vessels without detriment to the competitive position of the United States in the world shipping market.

MTMTS Interfaces With Shippers, MSC and MAC

The Military Traffic Management and Terminal Service (MTMTS)—a major command of the Army—provides an interface with shippers, commercial carriers, and the Military Airlift Command and Military Sealift Command by managing:

- Freight and passenger traffic within CONUS;
- Worldwide personal property movement and storage; and
- Common-user military ocean terminals in the United States and certain oversea areas.

MTMTS is the operating agency through which the Secretary of the Army exercises his responsibility as DoD single manager for military traffic, land transportation and common-user ocean terminals.

COMPUTER PLACEMENT—Without the support of automatic data processing, modern military transportation would slow down to a virtual standstill. (DoD photo)

Purpose

The objective of MTMTS is to provide responsive, flexible support in peace and war to the operating forces of the U.S. Army, Navy, Air Force and Marine Corps. MTMTS provides the *how* of movement management after the military shipper decides *when*, *where* and *what* is to be moved.

To accomplish its mission, nearly 1,000 MTMTS civilian employees are engaged in traffic management activities, another 4,700 are in terminal operations and installation support, and an additional 1,400 serve as contract stevedores. They support the approximate 900 military members of MTMTS, jointly staffed by members for the Army, Navy, Air Force, and Marine Corps.

MTMTS consists of a headquarters (HQ MTMTS) located in Virginia just outside Washington, D.C.; two area commands in New York and California; the U.S. Army Transportation Engineering Agency in southern Virginia and a liaison office at Headquarters, United States European Command.

For management purposes, operations functions are divided among the four directorates at the headquarters staff level. They include:

- Personal property,
- Passenger traffic,
- Inland traffic, and
- International traffic.

Personal Property

In terms of dollars spent, the largest MTMTS peacetime mission is the movement and storage of household goods and personal property for members of the Defense Department. In CONUS during FY 1972, the Services spent $253.6 million on personal property movements. When packing and containerization, storage, claims, ocean terminal handling and air and sealift costs are added, the total program approximates $646 million.

MTMTS is responsible for the worldwide management of the program. The agency develops and publishes movement and storage procedures, negotiates rates, develops container specifications, establishes standards of service, and evaluates the services rendered.

In addition to eastern and western area-management activities, MTMTS maintains regional storage movement offices in Atlanta, Georgia; Fort Worth, Texas; Jacksonville, Florida; Topeka, Kansas; and Washington, D.C.

Personal Property Innovations

Efficient and damage-free shipment are the goals of the Defense Department's Personal Property Movement and Storage Program. The worldwide program plays an especially important role in the morale and well-being of all Service members. In support of that objective, a new contract with more stringent provisions has been negotiated with the carrier industry. A tender of service, providing greater protection to the Service member, has also been negotiated with the mobile home carriers.

Meanwhile, a computer-supported worldwide Household Goods Information System for Traffic Management (WHIST) has been developed and is now in operation. It provides information for reliable carrier evaluation, a basis for elimination of marginal carriers from the program, and a method

for rewarding those carriers most fully meeting service standards.

Passenger Traffic

All Defense Department passengers move within CONUS under procedures established by MTMTS. In FY 1972, more than five million passengers were moved within CONUS at a cost of $213 million.

Passengers traveling individually or in small groups are routed by installation transportation officers. Movements in groups of ten or more people for distances of more than 150 miles are routed by MTMTS. Routing procedures and policies are periodically examined with a view to adjusting the group-size breakpoint.

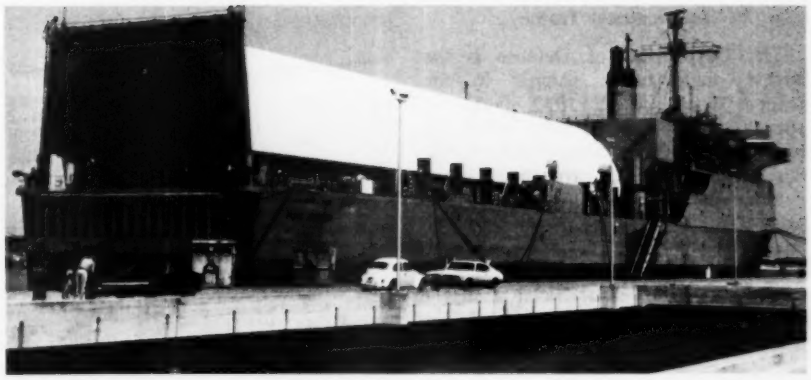
When the distance is less than 450 miles, the local transportation officer makes his own movement arrangements in accordance with policies and procedures published by HQ MTMTS. The local installation transportation officer spends well over three-fourths of the passenger movement dollar routing an equal proportion of the DoD travelers.

Passenger movement activities are broad in scope and complex in nature. For example, in a given month, MTMTS may package as many as 50 separate movement requirements, comprising 1,500 passengers, into one consolidated move, using charter aircraft, scheduled air service and charter bus moves—involving several origins and destinations. It is not unusual for passenger traffic to receive more than 100 separate requests in a single day.

A major change in passenger traffic management was recently instituted by centralizing port calls of all Army passengers going overseas. Port calls of personnel to terminals for overseas movement is a responsibility of the individual Services. However, under its original charter, MTMTS has been performing that function for Army travelers since 1965.

The centralization of port-call functions permits a reduction of administrative and personnel costs in excess of a half million dollars per year. It provides better monitoring and control of an operation formerly fragmented in widely dispersed locations.

In brief, passenger traffic manages the volume of business by packaging individual requirements into larger groups and offering them to the bus, air, rail carriers and carrier associations. Working against a response deadline, representatives of the carrier and carrier associations indicate a desire to participate in the moves by proposing schedules, routes and costs.



MISSILE CARRIER—THE U.S. Naval Ship *Point Barrow* carries Saturn missiles for use in the NASA space program to Port Canaveral, Florida. (U.S. Air Force Photo)

Innovations in Passenger Traffic

With the use of a computer processing system, a rigid evaluation is made of all Service offers to determine the mode and carrier offering the best service at the lowest cost. The computerized system, called Passenger Traffic Management System (PASTRAM), is an on-line, real-time system, utilizing third generation computers.

One PASTRAM sub-system can retrieve and provide data of all planned movements for a specified date or date-range by either visual display or printed listings. Print-outs are routinely provided designated "on-call' passenger movement specialists to assure response to such situations should they occur during off-duty hours.

Inland Traffic

The Military Services spent almost $400 million in FY 1972 on the movement of supplies and equipment within the United States. MTMTS' inland traffic mission is to ensure the efficient and effective procurement and use of commercial transportation services in CONUS. The functions involved in that responsibility culminate in providing routing instructions to shipping activity officers. The job assures that freight movement requirements are met and that military shippers spend their money intelligently.

The basic freight traffic management tasks include shipment routing and negotiating and quoting the rates at which those shipments move. MTMTS provides traffic management support for most Defense freight movements within CONUS, including movements to ocean ports. The agency directly controls 82 percent of the freight transportation costs and 97 percent of the military freight tonnage shipped in the United States. The exceptions are shipments weighing less than 10,000 pounds, which remain the responsibility of local transportation officers, although related traffic management functions are under the technical supervision of MTMTS.

Inland Traffic Innovations

Inland traffic is engaged in a project to control and monitor the movement of certain sensitive shipments in CONUS. Those sensitive shipments are weapons which could be used for illicit purposes. While sensitive shipments comprise only three percent of the total shipments, their importance is such that it is necessary to preclude any loss.

The method of control that inland traffic managers are testing involves monitoring the movement of selected carriers' trucks through a remote device located at MTMTS Headquarters, which has direct access to the carriers' computer. Through daily checks, the progress of the sensitive shipments is followed and any deviations are investigated immediately.

International Traffic

The Department of Defense is the largest single ocean shipper in the United States. In FY 1972, DoD did approximately $133 million worth of terminal business, moving about 12 million measurement tons of cargo through common-user ocean terminals. Over 80 percent of the cargo was exported. About 12 percent of the total was ammunition.

The challenge of terminal management lies in the coordination of the many systems and processes involved in keeping cargo flowing smoothly from hundreds of inland shipping points through more than 50 military and commercial ports, for ultimate delivery to 150 foreign destinations—all in accordance with schedules established by overseas command operational needs.

More than half of DoD's export cargo is shipped over commercial piers. This reflects DoD's reliance on commercial facilities where available, as well as the change in shipping methods from breakbulk procedures to containerization. Commercial ports have built and continue to build such extensive container-handling facilities that MTMTS concluded it would not pay the Government to install container cranes at the military general cargo terminals. Therefore, MTMTS relies entirely upon commercial piers for loading and discharging container ships in the United States.

International Traffic Innovations

Five years ago, only about six percent of DoD export cargo was shipped in containers. As the trend toward containerization develops, that figure—which now stands at more than 50 percent—is expected to reach as high as 75 percent.

The advantages of the innovation are numerous. Containerization reduces transportation costs, multiple handling, packaging costs, transit time, loss, damage, pilferage, inventory investments, the number of ships and terminal facilities required, and record-keeping, out-turn reports and surveys. It also provides premium transportation for diversion of eligible cargo and increases shelf-life for perishables.

Other Command Activities

Other MTMTS command activities include providing transportation engineering services. Inter-Service MTMTS's transportation engineering efforts are directed to two DoD programs: the Highways for National Defense Program, and the Engineering for Transportability Program.

PINPOINT PLACEMENT—A giant Sikorsky CH-54 Skycrane stacks containers airlifted from the ship in the background during an offshore unloading exercise. (DoD Photo)

In the former, MTMTS acts as the DoD executive agent for public highway matters under authority granted to the Secretary of Defense by Federal-aid highway laws. That authority has been delegated through the Secretary of the Army to MTMTS. Acting through the Federal Highway Administration, MTMTS integrates Defense needs into the Nation's public highway programs. MTMTS also provides highway traffic engineering services to installation commanders worldwide.

MTMTS is the Army agent for the DoD transportability program, which is an engineering effort aimed at assuring that items of Defense materiel are designed and constructed so that required quantities can be moved by available means of transportation. The transportability program includes development of criteria on worldwide transportation systems, production of guidance for the movement of problem items, and reviews leading to transportability certification of new military items and systems.

In addition to its basic missions of traffic and terminal management, MTMTS has several other responsibilities. Its primary planning function provides strategic movement planning to support the Joint Chiefs of Staff, the Unified and Specified Commands and the Military Services. In support of annual long-range joint strategic objectives, MTMTS develops detailed movement schedules from origin installations to ports of embarkation, identifies transportation problems and proposes solutions to them.

MTMTS coordinates closely with the Department of Transportation civil regulatory agencies and Defense agencies, planning for continuity of operations and cooperative action during civil disasters and in wartime.

During spring 1972, the responsibility for the administration of the Military Standard Transportation and Movement Procedures (MILSTAMP) was transferred from the Defense Supply Agency to the Secretary of the Army, who designated the commander of MTMTS as his executive agent. MTMTS established a MILSTAMP administration office as the Defense focal point for MILSTAMP matters. The basic objective of the MILSTAMP program is to bring the cargo documentation system into line with today's containerized and computerized shipping technology.

In regard to the overall management of Defense-wide transportation operations, officers at more than 1,500 Defense installations rely on MTMTS. They are military-user representatives of the Defense transportation system. Technical support of those installation transportation officers is one of MTMTS' major concerns. Although not assigned to MTMTS, the transportation officers depend upon MTMTS for traffic management guidance and directives.

Chain of Command

The MTMTS Headquarters is designed to direct field activities and to perform certain operating functions which can be carried out most efficiently and effectively on a centralized basis. Army Major General C. J. Lang is MTMTS Commander; Air Force Brigadier General M. P. Hooker is Vice Commander; and Navy Rear Admiral W. McHenry is Deputy Commander.

Major Navy Logistical Unit

MSC Fulfills Strategic, Logistic Sealift Needs

The Military Sealift Command (MSC)—a major logistical unit of the United States Navy—develops its war-emergency sealift capability by exercising its muscle in peacetime, affording worldwide logistical support for the Army, Navy, Marines and Air Force. Its mission is strategic and logistical sealift. Principal MSC functions are to provide:

- Sealift support of miltiary forces in contingency or emergency;
- Capability for war-emergency expansion;
- Logistical support of the military in peacetime; and
- Department of Defense ocean shipping for non-transportation purposes (i.e. oceanography, hydrographic research, cable laying and repair).

MSC is the operating agency through which the Secretary of the Navy exercises his responsibility as DoD single manager for ocean transportation.

To provide sealift, MSC has a worldwide organization. Headquarters is at Washington, D.C.; area commands are located at New York, Oakland, Yokohama and Bremerhaven. Sub-area commands operate at Naples and New Orleans. Key port offices and cross-service representatives provide day-to-day liaison with the military services and with industry.

The MSC Role

The Defense sealift-airlift team is a vital element of national security. C-141 and C-5 aircraft can airlift troops overseas in days. But strike forces must be sustained by sealift, just as fuel for aircraft is delivered by sea. Airlift force can move an infantry division in 10 days. But fuel, guns, helicopters, ammunition, building materials, ordnance shops, hospitals and other equipment needed to sustain that division must come by sea.

To deliver DoD cargo worldwide, MSC uses ships of its small Government-owned fleet, contracts and cargoes in less-than-shipload lots on scheduled commercial liners, charters commercial ships, and utilizes vessels from the National Defense Reserve Fleet. In a real pinch, the Command might even use foreign flag ships—as was required in the early Vietnam buildup.

INSTANT PORT—Offloading C-ration cartons from an LST at the beachline, troops establish an outdoor commissary issue warehouse.
(DoD Photo)

Government-owned ships, which make up MSC's nucleus fleet, include a small number of ocean-going cargo ships and tankers; specialized sea carriers such as LSTs; vessels involved in scientific research and space flight programs; and a variety of other ships—most of them of World War II vintage.

At the present time, MSC operates 108 Government-owned ships and has 97 commercial ships under charter. Among the Government-owned vessels are 17 tankers and 31 special project ships which support operations by NASA, the Air Force missile ranges, the Oceanographer of the Navy and the Naval Research Laboratory.

In FY 1972, MSC delivered 20.6 million measurement tons of military cargo and another 19.7 million long tons of petroleum products worldwide. Nearly 106,000 passengers were transported, most of them Korean troops to serve in Vietnam. MSC Fiscal Year 1972 expenditures totaled $863.3 million, with $710.7 million of that total—82 percent—being paid to private industry for ocean transportation and related services.

MSC relies upon the U.S. Merchant Marine—as evidenced by the fact that 95 percent of CONUS-outbound military cargo was moved in commercial vessels during the past year.

Historically, the U.S. Merchant Marine has been justified for two reasons: carrying of U.S. foreign trade, and helping promote national security by augmenting the Navy in an emergency. Today, the question as to whether the Merchant Marine can still fulfill the second element of its twofold reponsibility is vital—and valid.

Both the Merchant Marine and MSC capability are being modernized—and strengthened—by a number of programs. The Merchant Marine is becoming more competitive, and it includes new types of ships which have a capability of meeting emergency needs.

Currently, 80 new merchant ships are on order, representing 4.5 million deadweight tons. Another five ships are being converted to move containers. Total tonnage of the Merchant Marine now is 15 million tons—6 million of which is in the reserve fleet or part of the Great Lakes fleet.

Modernization

U.S. maritime interests have pioneered the introduction of the container ship on the world's oceans, investing $7.5 billion in container ships and supporting facilities in the past 15 years.

In the process of development, container ships have become integral parts of the total U.S. distribution system—linked inexorably to rail lines, truck delivery systems and terminals. Together they represent an intermodal logistics chain which links the consumer—or the soldier, sailor, marine or airman in the field—to factory and agricultural field.

Container ships do not represent the only tangible advance in maritime technology. Following their wake are the barge carriers. A half dozen U.S. companies now operate or have on order 23 barge carriers, ships such as the LASH (lighter aboard ship) and Seabee (a cargo ship that carries loaded barges). Both

TEAMWORK—Sea-Land vans, containing explosives, are loaded from a cargo ship onto a barge for further shipment. (U.S. Army Photo)

ships normally carry barges rather than containers and can lift or hoist them aboard or put them in the water by cranes or hydraulic elevators in the stern of the vessels.

Also coming into the U.S. Merchant Marine inventory are roll-on, roll-off ships capable of carrying a sizable number of wheeled vehicles or containers. Other ships on order include oil-bulk-ore carriers (OBOs) and jumbo tankers of 200,000 tons and more. There is also progress in other areas, such as the development of ocean-going, integrated, ship-size tub-barge systems, suitable for movement of bulk, break-bulk and liquid cargo. Barges displacing 30,000 tons are now in operation and 50,000-tonners are under construction.

Another innovation is represented by LGNs—liquefied natural gas carriers—needed to move energy sources from foreign supply fields to our factories, offices and homes.

The Maritime Act of 1970 is a program to build 300 new merchant ships over a 10-year period. The ultimate objective is to move 30 percent of the U.S. foreign trade in American flag ships.

Progress in maritime technology does not automatically provide parallel benefits for the military. While barge carriers can be used in a contingency, because they can carry outsize cargo and vehicles, including helicopters, they have been designed for commercial productivity. Part of the intermodal systems, barges depend on tugs to move through inland water systems—or to and from marshaling yards.

Container ships, while highly productive because of fast turn-around time and great speeds, also have limitations, chiefly centering on the fact they are non-self-sustaining. Shoreside cranes and container yards equipped with sophisticated cargo handling systems are needed for container ships.

The sheer size of new ships poses limitations that the military shipper must also consider. They require deep-water ports. Typical of the problem is the fact that not a single port in the continental United States can accommodate tankers of 100,000 tons or more.

Success of the ongoing revolution in commercial sealift poses other problems—one of which is that commercial shippers are not enthusiastic about providing ships for Government use once they are engaged in commercial trade.

There is yet another factor: changes of Federal funding for construction of merchant ships for military use seems highly unlikely.

This means that Military Sealift Command—and the shipper—must learn to use the ships which now exist, or which will be coming into the U.S. inventory.

To enhance its capability to support the Military Services in the future, Military Sealift Command is involved in a number of programs, some already implemented and others in the planning stage. One of those is known as BARTAP—the Barge Transportation Appraisal Program. Coordinated by MSC, it involves the major military commands in Europe and the Pacific, and the Army's Military Traffic Management and Terminal Service.

BARTAP is designed to learn how to best use existing ships—in this case, barge carriers—for military movement in both peacetime and contingency operations. Seabee-class ships are being used to transport military cargo to Europe—with 9,000 measurement tons of military vehicles, household goods and equipment being shipped to Bremerhaven on

FUEL TRANSFER—Ship-to-ship refueling at sea saves time and money. (DoD Photo)

the maiden voyage of the *SS Doctor Lykes*, the first operational Seabee. In February, all helicopters and equipment of the Army's 175th Aviation Company was moved by a Seabee barge carrier from the Gulf of Mexico area to Mannheim, Germany. Ten barges dropped by the mother ship at Rotterdam, were moved up the Rhine for unloading at Mannheim. The helicopters then were flown to Illesheim, Germany.

MSC also is stepping up its Navy fleet-support operations. It now operates a former Navy oiler with an all-Civil Service crew in support of the Seventh Fleet. That ship, and a civilian ship chartered in a previous test, have refueled Navy carriers, destroyers and other ships while underway, alongside and over the stern.

In addition, MSC soon will receive three Navy cable repair ships and two ocean-going salvage tugs. These also will be operated by Civil Service crews in support of Navy fleets.

MSC also had a role in another test, OSDOC II, held off the Virginia coast. Purpose of the test—Offshore Discharge of Container Ship—was to determine how commercial container ships may best be offloaded in open water using existing cargo handling systems, such as shore-based cranes, landing craft, commercial cranes on floating piers, and helicopters.

To upgrade its own fleet without procurement of new Government-owned ships, MSC is moving in two directions. First is to learn how to use the newer commercial ships. When ships are not available, the command is attempting to replace Government-owned assets with vessels from other sources. The command, for example, recently added six 1156-class LSTs to its inventory and is laying up some of its World War II 542-class LSTs.

Second, MSC has negotiated a contract with private investors who are building nine 25,000-ton tankers which will be chartered by the command for long terms—up to 20 years. They will replace some of the World War II Government-owned tankers that the Command still operates. All will be delivered by the end of 1974 and will be used to support Navy, Army, Marine and Air Force petroleum-product storage units at small, shallow-water, limited-facility ports.

MSC also has received solicited proposals from private investors to build two barge carriers—a LASH and a Seabee—for long-term charter. They would be similar to those already operating, although some modifications may be included to meet specific Army, Navy, Marine and Air Force needs.

MSC Chain of Command

Rear Admiral John C. Chase is commander of MSC. Other MSC flag officers are Rear Admiral William M. Pugh, Atlantic area commander, and Rear Admiral William S. Guest, Pacific area commander.

Rapid, Responsive, Reliable

Multi-Missioned MAC Provides DoD Airlift

The Military Airlift Command (MAC), a major part of the United States Air Force, is a worldwide command, responsible for several major missions which serve the Military Establishment:

- Deployment of ground and air combat forces and their support equipment;
- Logistical resupply of all deployed forces;
- Airdrop of troops and battle equipment;
- Aeromedical evacuation;
- Aerial search, rescue and recovery of downed flyers and space hardware;
- Environmental services including forecasting, observing, atmospheric sampling, hurricane and typhoon reconnaissance and cartographic aerial photography; and
- Documentary photography and audio-visual services.

Additionally, MAC acts as the executive agent to contract commercial airlift for DoD.

The command is also responsible for the training, inspection, and safety programs of approximately 32,000 Air Reservists, and Air National Guardsmen, organized into some 200 flying and support units.

Airlift services are performed in accordance with priorities established by the Joint Chiefs of Staff. MAC derives its resources from the Air Force and reports in channel to the Air Force Chief of Staff.

Strategic Airlift

Even in peacetime, the capability of rapid, responsive and reliable airlift of fighting forces is MAC's primary objective. That combat mission calls for quick airlift response to or from any place on the globe.

The introduction of the C-141 Starlifter in January 1964 dramatically increased efficiency in the command. The aircraft is the first pure-jet airplane specifically engineered to meet military standards as a troop or cargo carrier. During the Vietnam War, Starlifters cut the cost of delivering a ton of cargo from the East Coast to Southeast Asia by more than 50 percent and reduced delivery time from approximately 100 hours by prop-driven aircraft to 30 hours.

Starlifters cruise at more than 500 miles an hour and carry a maximum design payload of 68,500 pounds. Depending upon the actual load, they can fly nonstop from Tokyo to San Francisco.

C-5 Galaxy

In mid-1970, the C-141 was joined by the C-5 Galaxy—the world's largest

aircraft. The giant C-5 specializes in carrying outsize cargo at intercontinental ranges and jet speeds. It can take off and land in relatively short distances. It can be loaded and offloaded simultaneously at the front and rear cargo openings. It can "kneel down" to facilitate loading directly from the truck-bed levels.

Without a payload and not allowing for fuel reserves, the C-5 can fly 7,320 miles non-stop. It can carry 50 tons for 5,300 miles or 87 tons for 4,210 miles—all at better than 500 miles an hour.

The C-141 and the C-5 are the sister ships of MAC's strategic airlift concept for the 1970s—the C-141 for troops and small vehicles and the C-5 for cargo.

The vast potential of the C-141 and the C-5 team was realized when MAC aircrews linked the U.S. with Europe during REFORGER CRESTED CAP exercises in 1971. The exercises began in 1969 by using only the C-141 and clearly demonstrated that the North Atlantic Treaty Organization could be supported by U.S.-based forces without reducing operational readiness in Europe. MAC transported 15,500 Army and Air Force men from the U.S. to Europe and back to the U.S. in 1969 and more than 13,000 during the 1970 exercise. REFORGER III in 1971 called for the airlift of more than 11,000 men of the First Infantry Division from the U.S. to Europe in 13 C-5 and 126 C-141 missions within a seven-day period.

MAC Organizational Structure

MAC's resources are divided into three types of organizations: the Strategic Airlift Force, Special Airlift Wings, and Technical Services.

The major airlift units are the Twenty-First Air Force, which controls the entire scope of MAC operations from the Mississippi River eastward to Calcutta, India, and the Twenty-Second Air Force, which controls the area west of the Mississippi across the Pacific to Calcutta. In addition to those airlift resources, MAC acts as the executive agency for the Secretary of the Air Force, and, in that capacity, as single manager for airlift service within DoD. MAC personnel negotiate contracts with commercial airlines to fill DoD logistical requirements.

MAC also negotiates contracts to fill Dod requirements through the Civil Reserve Air Fleet (CRAF). Established in 1952, CRAF is a program to provide an orderly integration of a fleet of civilian airliners to back up USAF air transport forces in times of emergency or national crises.

FLYING HOSPITAL WARD—Air Force C-9 Nightingale aircaft, named after the famed British nurse, bring jet speed and comfort to the Military Airlift Command's mission of airlifting sick and wounded military personnel between medical facilities in the United States. (U.S. Air Force Photo)

TWO MILLION POUNDS—In a test of its structural integrity, a C-5 Galaxy takes off at a gross weight of nearly two million pounds. (U.S. Air Force Photo)

MAC maintains three specialized technical services and specific mission units to provide "needed now" information and service to facilitate day-to-day Air Force and DoD operations. The Aerospace Audio-Visual Service is the Air Force's single manager of photographic and video products and services. The Air Weather Service operates a worldwide computerized network of facilities to provide support to Air Force and Army units at all levels, while the Aerospace Rescue and Recovery Service provides worldwide capability to search for, locate and recover personnel and aerospace hardware in support of the U.S. Air Force and other DoD global aerospace operations.

Presidential Pilot

An important special unit of MAC is the 89th Military Airlift Wing. It carries out one of the greatest responsibilities of any element of U.S. Government—the air transportation of the President, Vice President, Cabinet members, top Government officials and foreign dignitaries.

Reserve Associate Program

Air Force Reserve units fly actual MAC missions in first-line aircraft and help maintain their aircraft alongside active force personnel. In the "associate unit" program, Reserve units are organized at the same locations and maintain the same training level as the active duty airlift units with which they are associated.

In that manner, Reservists maintain combat readiness for immediate active-duty mobilization, if they are needed. The overall program objective is to have an associate airlift squadron, including maintenance and support personnel, working with each of MAC's C-5, C-141 and C-9 units.

The efficiency and productivity of the C-9 Nightingale greatly enhance MAC's aeromedical airlift mission. The high-speed aircraft contains equipment specially designed for complete airborne medical care.

Aeromedical Evacuation

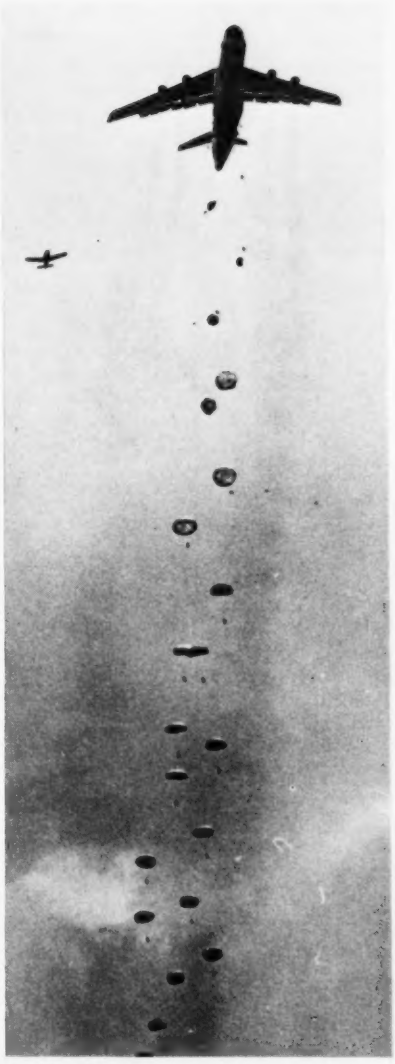
Airlift can be more than a means of fast transportation for wounded fighting men requiring care available only at certain hospitals in CONUS. It can mean treatment by those precious few medical specialists within 24 hours after being wounded in the battlefield. A jet-propelled hospital can mean quick correction of a medical problem that might carry over a lifetime.

Such was the case in Vietnam. The Armed Forces can truly boast that never before in the history of warfare have the wounded been evacuated half a world away to their homeland in a single day and night. But officials feel the true measure of aeromedical evacuation is living today in the users among us.

Humanitarian Airlift

While the MAC crews remain in a constant state of military readiness—prepared to perform strategic airlift in a moment's notice—the airlift force is used frequently to meet emergencies and relieve suffering caused by natural disasters. When the Nicaraguan earthquake left thousands homeless this past winter, MAC was there to provide life-saving food and shelter. MAC played a major humanitarian role in typhoon-swept Guam in 1962, in drought-stricken Pakistan in 1964, in snow-bound Arizona blizzards in 1967, and aeromedical evacuation of Veterans' Administration Hospital patients in Mississippi during Hurricane Camille in 1969.

When Tropical Storm Agnes invaded widely separated parts of the United States in June 1972, MAC teamed with the Tactical Airlift Command, the Air Force Reserve, and the Air National Guard to fly over 650 tons of food, bedding, clothing, pumps, medical items and other associated relief supplies to the stricken areas.



TROOP DELIVERY— Army paratroops jump from a C-5 Galaxy, the world's largest aircraft. **(U.S. Air Force Photo)**

Problem Solving

There are three major areas of concern to MAC officials:

- Foremost is the ability of the Command to meet the airlift demands of national emergencies. Specifically, MAC must meet its mission in an era of fewer Defense dollars. The solution is to increase efficiency by getting a better order of priority of what has to be moved first and to maintain a viable airlift force.
- While more than 90 percent of military passengers are airlifted on commercial carriers, the responsibility for booking and processing passengers rests with MAC. Therefore, improvement of passenger services is one of MAC's top priorities. Like other commands, MAC has little control over the selection of personnel assigned to it. The command has to train and develop its airmen as passenger specialists. As in any technical and complex field, a certain amount of difficulty is inherent and the experienced specialists must work with and teach their younger contemporaries.

  MAC is also working with commercial airlines in developing a suitable customer-relations program. Computer-oriented terminals are being installed to complement the projected improvement in personnel. A heavy reliance is placed on passenger-reaction forms to detect potential problems while still in the symptom stage.
- The consensus is that a major problem lies with airlift requesters and users. It is the inability of MAC customers to accurately forecast requirements which prevents the Command from getting a better order of airlift priorities. This reduces efficiency and effectiveness. The solution—on the surface—is simple: develop a system that would produce more valid and reliable estimates of requirements for MAC services. However, that solution is elusive. Much study has gone into the many aspects of the problem of accurate forecasts of airlift requirements.

The MAC Chain of Command

The commander of MAC is General Paul K. Carlton, with headquarters at Scott Air Force Base, Illinois. Major General Ray M. Cole commands the 21st Air Force and Major General John F. Gonge is commander of the 22nd Air Force.

Transportation Management

	MTMTS	MSC	MAC
Scope	Primarily domestic	Worldwide	Worldwide
Personnel	900 military; 4,800 civilian	430 military; 7,882 civilian	63,673 military; 16,168 civilian
Industrial Fund Revenue	FY 72: $181.7 million; projected FY 73: $169 million	FY 72: $863 million; projected FY 73: $691.6 million	FY 72: $824.7 million; projected FY 73: $761.6 million
Operating Forces	None	105 nucleus ships; 95 chartered ships; 128 response ships in sealift readiness program; 24,650 containers; and 7,814 trailers.	276 C-141 jets; 69 C-5 jets; and 352 CRAF aircraft.
Procurement	Contracts for stevedoring, allied services and inland commercial transportation.	Charters commercial ships and contracts for movement on scheduled ocean carriers and systems contracts.	Charters and contracts for movement on commercial aircraft.
Rate-Setting	Evaluates domestic carrier rates, recommends approval to DoD filed with Interstate Commerce Commission, and sets terminal cargo handling rates.	Establishes rates for ocean lift via competitive procurement and negotiations.	Evaluates commercial rates and recommends approval to the Civil Aeronautics Board.
Booking	Offers cargo to MSC and MAC, but does not book; routes rail, bus, truck cargo and passengers in CONUS.	Books ocean cargo and passengers on commercial and Government-owned ships.	Books air cargo and passengers on commercial and Government-owned planes.
Billing	Bills services for cargo handling and allied services.	Bills services for ocean lift and pays carriers.	Bills services for airlift and for contingency exercises.
Operations and Control	Operates ocean terminals and controls CONUS movement of cargo.	Operates MSC ships and controls chartered ships.	Operates MAC aircraft, controls chartered aircraft, and operates air terminals.
Functions	Manages freight and passenger traffic within CONUS; personal property movement and storage worldwide; and common-user military ocean terminals in the U.S. and certain oversea areas.	Provides sealift support of military forces in contingency or emergency; capability for war-emergency expansion; logistical support of the military in peacetime; and DoD ocean shipping for non-transportation purposes.	Deployment of ground and air combat forces and their equipment; logistical resupply; airdrop of troops and equipment; aeromedical evacuation; aerial search, rescue, and recovery; environmental services; and documentary photography.

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